What is claimed is:

5

10

15

25

30

- 1. An isolated *Geobacillus stearothermophilus* reverse transcriptase, wherein the reverse transcriptase is an group II intron-type reverse transcriptase.
- 2. A substantially purified polypeptide, comprising an amino acid sequence selected from the group consisting of:
 - a) SEQ ID NO: 2, and
- b) a variant of SEQ ID NO: 2 having at least 80% identity to SEQ ID NO: 2 which comprises a similar reverse transcriptase activity to that of a polypeptide comprising SEQ-ID NO: 2.
- 3. A catalytically active deletion mutant of the polypeptide comprising SEQ ID NO: 2, wherein the deletion mutant lacks at least one amino acid of said polypeptide.
- 4. A composition comprising the polypeptide of claim 3 and a carrier.
 - 5. A purified or isolated polynucleotide comprising a nucleic acid selected from the group consisting of:
 - a) SEQ ID NO:1;
- b) a nucleic acid encoding the amino acid sequence of SEQ ID NO:
 - c) a nucleic acid which hybridizes with the nucleic acid of b) under stringent conditions and encodes a polypeptide having a similar reverse transcriptase activity to that of the polypeptide comprising SEQ ID NO:2.
 - 6. A vector comprising the polynucleotide of claim 5.
 - 7. A host cell comprising the vector of claim 6.
 - 8. A method of producing a reverse transcriptase, the method comprising:
 - a) culturing the host cell of claim 7;
 - b) expressing said gene; and
 - c) isolating said reverse transcriptase from said host cell.
 - 9. The method of claim 8, wherein the host cell is E. coli.

- 10. A kit for performing RT-PCR, the kit comprising-at least one aliquot of a substantially purified protein selected from the group consisting of:
 - a) a polypeptide as described by SEQ ID NO: 2, and
 - b) a variant of the polypeptide described by SEQ ID NO: 2 having at least 80% identity to SEQ ID NO: 2 which comprises a similar reverse transcriptase activity to that of a polypeptide comprising SEQ ID NO: 2.
- 11. The kit of claim 10 further comprising at least one reaction buffer.
 - 12. The kit of claim 10 further comprising at least one aliquot of an RNase inhibitor.
 - 13. The kit of claim 10 further comprising at least one aliquot of a DNA polymerase.
 - 14. The kit of claim 13 wherein the DNA polymerase is Taq polymerase.
 - 15. A method of synthesizing a cDNA copy of an mRNA template, the method comprising:
 - (a) hybridizing a primer to a first mRNA molecule; and
 - (b) incubating said mRNA molecule of step (a) in the presence of one or more deoxy- or dedioxy ribonucleoside triphosphates and the reverse transcriptase of claim 1, under conditions sufficient to synthesize a cDNA molecule complementary to all or a portion of the first mRNA molecule.
- 25 16. The method of claim 15 wherein the primer is an oligo d(T) primer.

5

15

20